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CALIFORNIA FOREST AND RANGE
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FOREST STATISTICS FOR KITTITAS COUNTY, WASHINGTON

From the inventory phase of the Forest Survey

U. S. Forest service. Pacific Northwest forest experiment station.

CALIFORNIA FOREST & RANGE EXPERIMENT STATION
330 GIANNINI HALL, UNIVERSITY OF CALIFORNIA
BERKELEY, CALIFORNIA

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
PACIFIC NORTHWEST FOREST EXPERIMENT STATION



ADDRESS REPLY TO
DIRECTOR
AND REFER TO

424 U. S. COURT HOUSE
MAIN AND SIXTH STREETS
PORTLAND, OREGON

R - NW
Forest Survey
County Statistics

July 24, 1936

Director,
California Forest Experiment Station,
332 Giannini Hall,
Berkeley, Calif.

99.54
F762 P
no 60

Dear Sir:

A copy of "Forest Statistics for Kittitas County, Washington, the tenth of a series of Forest Survey mimeographs for eastern Washington and eastern Oregon, is enclosed for your files. The explanatory text, "The Forest Survey of Eastern Oregon and Eastern Washington", which accompanied the first report should be referred to for detailed type descriptions and methods of survey procedure.

To date forest statistics have been released for all counties in western Oregon and western Washington, for Klamath, Wasco, Jefferson, Harney, Lake and Deschutes Counties in eastern Oregon, and for Yakima, Klickitat, and Chelan Counties in eastern Washington. Additional copies of these reports are available for distribution.

Yours very truly,

Thornton T. Munger
THORNTON T. MUNGER, Director

Enclosure

FOREST STATISTICS FOR KITTTITAS COUNTY, WASHINGTON

FROM THE INVENTORY PHASE OF THE FOREST SURVEY

Forest survey report no 605

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F762P
no 60*



U. S. DEPARTMENT OF AGRICULTURE FOREST SERVICE
PACIFIC NORTHWEST FOREST EXPERIMENT STATION
THORNTON T. MUNGER, DIRECTOR

H. J. ANDREWS, IN CHARGE OF FOREST SURVEY R. W. COWLIN, ASSISTANT
EDWARD D. BUELL, IN CHARGE OF FIELD AND OFFICE WORK
IN KITTTITAS COUNTY

PORTLAND, OREGON

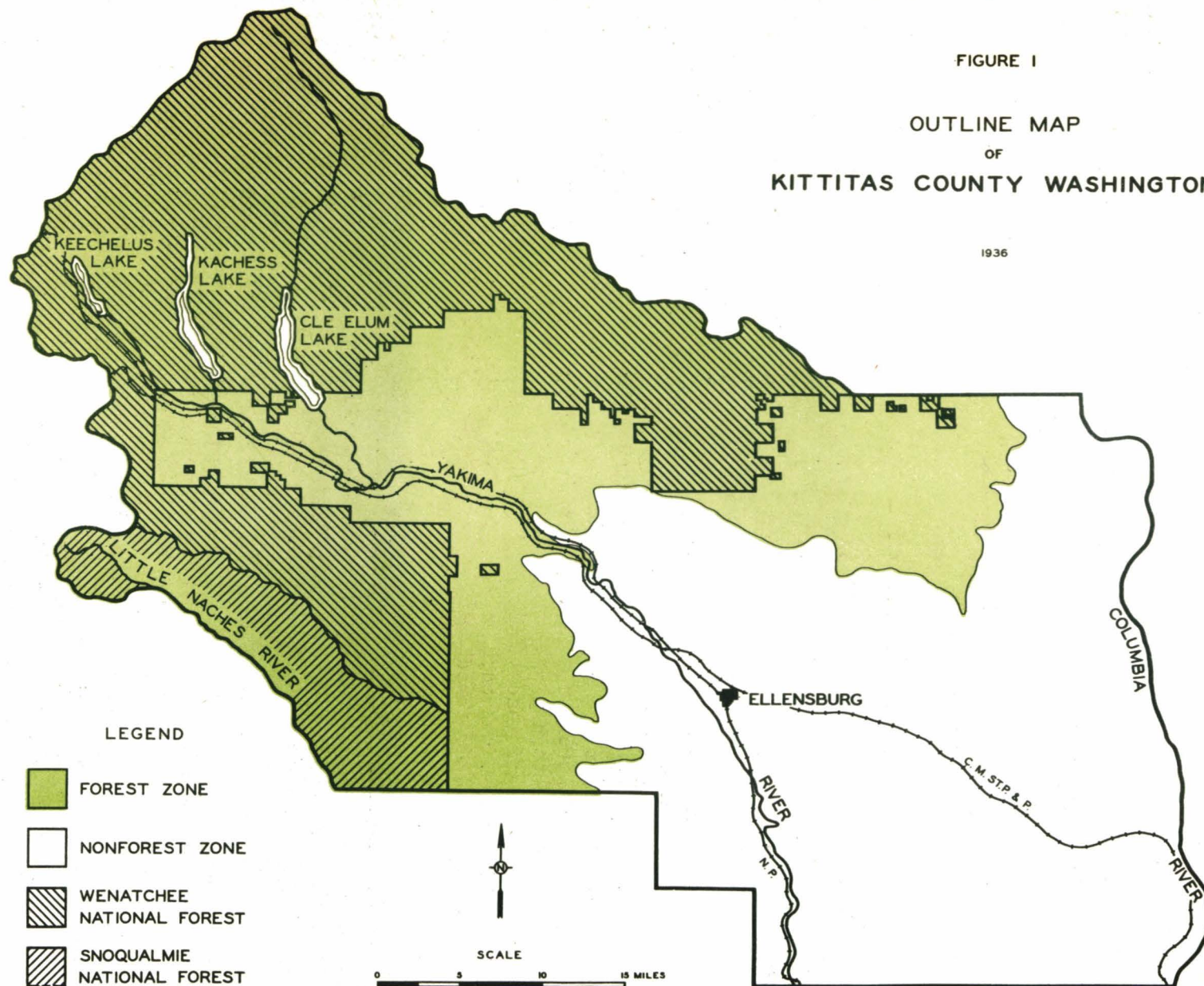
JUNE 20, 1936

CALIFORNIA FOREST & RANGE EXPERIMENT STATION
330 GIANNINI HALL, UNIVERSITY OF CALIFORNIA
BERKELEY, CALIFORNIA

FIGURE I

OUTLINE MAP
OF
KITITAS COUNTY WASHINGTON

1936



FOREST STATISTICS FOR KITTITAS COUNTY, WASHINGTON

By Edward D. Buell^{1/}

This is the initial report of a survey of Kittitas County, Washington,^{2/} made during 1934-35 by the Forest Service as part of a national study of forest resources. The statistics of the forest inventory of Kittitas County are presented in four tables and four figures. An explanatory text, "The Forest Survey of Eastern Oregon and Eastern Washington", contains detailed definitions of the forest types recognized, and a description of the methods used in the inventory.

Location and Description of County

Located in central Washington, Kittitas County extends east from the summit of the Cascade Range to the Columbia River and south from the summit of the Wenatchee Mountains to the Naches River (figure 1). It is about 60 miles long, 40 miles wide, and has a total land area of 1,490,560 acres.

Except for the south central portion which is an undulating valley, the county is mountainous. The eastern part occupied by the Saddle Mountains and eastern extremities of the Wenatchee Mountains is characterized by steep-sided, flat-topped ridges and deep narrow canyons. From an elevation of about 550 feet along the Columbia River the land rises sharply to a general height of approximately 3,000 feet with some points reaching 4,500 feet or more. The western part occupied by upper slopes of the Cascade Range is very rugged and inaccessible. Along the main divide and the crests of various spurs steep, barren, formidable peaks rear abruptly from narrow passes to produce a saw-toothed terrain extremely difficult to travel but

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- 1/ THE FIELD AND OFFICE WORK OF THE FOREST SURVEY OF KITTITAS COUNTY WAS DONE BY EDWARD D. BUELL, P. N. PRATT, W. E. SANKELA, C. S. SMITH, W. E. PELTO, R. W. COX, R. H. EDDY, N. R. EDMONDSON, G. N. ALLMAN, A. W. HODGMAN, AND F. N. VOGEL.
 - 2/ OREGON AND WASHINGTON WERE DIVIDED FOR PURPOSES OF THE SURVEY INTO TWO REGIONS, (1) THE DOUGLAS FIR REGION, CONSISTING OF THAT PART OF BOTH STATES WEST OF THE SUMMIT OF THE CASCADE RANGE, AND (2) EASTERN OREGON AND EASTERN WASHINGTON, THAT PART OF BOTH STATES EAST OF THE SUMMIT OF THE CASCADE RANGE. EACH REGION WAS DIVIDED INTO FOREST SURVEY UNITS COMPOSED OF ONE OR MORE COUNTIES. AT A LATER DATE A REPORT WILL BE ISSUED FOR EACH SURVEY UNIT PRESENTING A TEXTUAL DESCRIPTION OF THE UNIT, DETAILED INVENTORY SUMMARIES, AND STATISTICS OF GROWTH AND DEPLETION ANALYZED IN THE LIGHT OF THE INVENTORY. FINALLY, A REGIONAL REPORT WILL BE ISSUED WHICH WILL SUMMARIZE THE UNIT REPORTS, PRESENTING AND DISCUSSING FINDINGS FOR THE REGION AS A WHOLE. THE REGIONAL REPORT WILL INCLUDE AN INTERPRETATION OF THE FOREST SURVEY DATA AS RELATED TO OTHER ECONOMIC DATA AND A COMPREHENSIVE ANALYSIS OF THE REGIONAL FOREST SITUATION FROM BOTH A PHYSICAL AND AN ECONOMIC STANDPOINT.

with magnificent scenery. Mount Daniel, Ingalls Peak, Bear Breast Mountain, and Chimney Rock, some of the more lofty peaks, attain heights of over 7,500 feet. The top of Mount Daniel, the highest point in the county, is 7,986 feet in elevation.

Precipitation varies greatly within the county and essentially determines the natural vegetative cover. In the north and west rainfall is more abundant and forest growth predominates; in the south and east rainfall is very light and sagebrush, grass and weeds constitute practically all of the vegetation. According to the U. S. Weather Bureau, the average annual precipitation is 61 inches at Lake Keechelus and 9 inches at Ellensburg. The most arid parts of the county probably have less than 7 inches of rain annually. Precipitation is seasonal coming almost entirely between September and June. Summer months are dry over the entire county and irrigation is a necessary part of agricultural development.

Nearly all the county lies in the drainage basin of the Yakima River. The extreme east portion drains directly into the Columbia River and the southwest portion into the Naches River. Three important lakes, Keechelus, Katchess, and Cle Elum, are located in the northwestern part of the county. They are natural lakes but have been increased considerably in size by dams constructed by the U. S. Bureau of Reclamation. These lakes and the Yakima River furnish the water used by the Kittitas division of the Yakima irrigation project which was initiated under the Bureau of Reclamation in 1906. The Kittitas division augmented by privately owned canal systems and improvement of various creeks contains approximately 128,000 acres of irrigable land.

Transportation is provided by two railways and a well developed highway system. The main transcontinental lines of the Northern Pacific and the Chicago, Milwaukee, St. Paul and Pacific railroads enter the county near Snoqualmie Pass and parallel the Yakima River to Ellensburg. From Ellensburg the Northern Pacific continues south along the Yakima River and the Chicago, Milwaukee, St. Paul and Pacific goes east to the Columbia River. A paved arterial highway extends the entire length of the Yakima River. At Ellensburg a branch extends eastward to the Columbia River and Spokane and near Cle Elum another branch runs north to Blewett Pass and Wenatchee. Secondary roads extend into all but the most rugged parts of the county.

The population of Kittitas County in 1930 was 18,154, according to the Bureau of the Census. About half the people live in cities of 2,000 inhabitants or more and half live on farms or in villages. Ellensburg, the county seat and principal city, had a population of 4,621 in 1930.

Agricultural Development and Mining

According to the Bureau of the Census 29 percent of Kittitas County is in farms but only about 6 percent or 90,000 acres is classified as crop land. The remainder is used as pasture land and much of it is little but open range. Intensive agricultural development is confined almost entirely to the valley section surrounding Ellensburg where irrigating

facilities are available. Hay is the chief crop, followed by cash grain crops and potatoes. Most of these crops require an abundant and uniform supply of water during the growing season so irrigation is essential to their production.

Stock raising is important in the county. The 1935 census places the cattle population at 27,000 and the sheep at 47,000. In the winter and spring these animals are grazed on the pasture land and open range in the southeastern part of the county; in the summer they are taken to the forest range in the north and west.

Mining has been in progress in Kittitas County since the latter part of the 19th century. Activities have been prevalent in the general vicinity of Cle Elum and in the Wenatchee Mountains. The coal mines located at Cle Elum, Roslyn, and Ronald constitute one of the more important mining developments in the Northwest. In 1935 these mines produced 566,000 tons of coal valued at about $1\frac{1}{2}$ million dollars.^{3/}

Gold, silver, copper, and other valuable minerals have been discovered at various places in the Wenatchee Mountains. Placer mining for gold was active some years ago but most of the paying areas have been depleted. However, there is still some placer mining being done and prospecting for quartz deposits still continues. A few small quartz mines have opened since mineral prices have improved.

Forest Land and Cover Types

Kittitas County's forest land, which amounts to 802,950 acres, was divided by the Forest Survey into 30 cover types. Data concerning forest-type areas together with data on nonforest land (types 1 and 2) are presented in tables 2 and 3, and figures 3 and 4. Forest land occurs as a zone that extends from the southeast portion of the county north and west to the summits of the Wenatchee Mountains and the Cascade Range. The inch-to-the-mile type map of the county^{4/} shows that the forest zone consists of two main parts; one dominated by ponderosa pine and one dominated by other coniferous species, principally Douglas fir, western larch, and the balsam firs.

Stands in which ponderosa pine is the key species occur along the south slopes of the Wenatchee Mountains and in the lower Cascade Range,

^{3/} REPORT OF THE STATE INSPECTOR OF COAL MINES, STATE OF WASHINGTON, 1935.

^{4/} MAPS ON INCH-TO-THE-MILE SCALE SHOWING THE LOCATION OF THE INTEGRAL AREAS COMPOSING THE 31 TYPES RECOGNIZED IN KITTITAS COUNTY WERE PREPARED IN CONNECTION WITH THE FOREST INVENTORY. THIS INFORMATION HAS ALSO BEEN INCORPORATED IN A LITHOGRAPHED MAP, SCALE $\frac{1}{4}$ INCH TO THE MILE, OF THE NORTHEAST QUARTER AND THE NORTHWEST QUARTER OF WASHINGTON. COPIES OF THESE MAPS MAY BE PROCURED FROM THE PACIFIC NORTHWEST FOREST EXPERIMENT STATION.

extending westward to the head of Cle Elum Lake in the north and well up the Little Naches River in the south. The continuity of the ponderosa pine belt is interrupted at various places by the intrusion of Douglas fir, upper-slope mixture, and lodgepole pine types. About two-thirds of the ponderosa pine belt is occupied by mature timber; the remainder is chiefly second growth.

The timbered area between the ponderosa pine belt and the summit of the Cascade Range consists of a number of types. The Douglas fir, upper-slope mixture, and fir-mountain hemlock types are the more important ones. Noncommercial stands occupy a considerable area. In the aggregate, this belt covers nearly twice as much of the county area as does the ponderosa pine belt.

Saw-Timber Types

This group comprises all the forest types in the county in which the timber is of commercial character and most of the volume is in trees 12 inches or more in diameter. These types number 14 and extend over 537,000 acres, two-thirds of the county's forest land. Four of the group, pine woodland (type 5 $\frac{1}{2}$), western red cedar (type 17), lodgepole pine large (type 25), and lowland white fir large (type 29), are unimportant. Of the 10 remaining, 4 are dominated by ponderosa pine.

Sawlog types in which the key species is ponderosa pine occupy 235,000 acres. Pure ponderosa pine (type 20.5) is the most important type in the county. It is found mostly in the accessible locations and occurs both along the south slopes of the Wenatchee Mountains and the lower east slopes of the Cascade Range. The trees within the type are of good quality and are sound and well formed. Defect reduces the gross volume by about 10 percent. Stands within the type vary from 3,000 to 30,000 board feet per acre with the average at about 8,000 board feet. Ponderosa pine large (type 20), the type of second importance in the pine group, occurs in general in the same parts of the county as does type 20.5. However, its range is somewhat wider and it extends farther into the Cascade Range to where the terrain begins to be rough and inaccessible. Douglas fir and western larch are the common associates of ponderosa pine in type 20.

In Kittitas County the pine mixture type (No. 27) includes both virgin and selectively logged stands. About one-fourth of the total area classified as type 27 consists of areas which originally were ponderosa pine type (No. 20), but where the majority of the pine has been cut, leaving mostly Douglas fir and larch with only small amounts of ponderosa pine. Volumes per acre on selectively logged areas of type 27 average about 3,000 board feet. In type 27 which has not been logged the volume is sometimes as high as 30,000 board feet per acre.

Ponderosa pine small (type 21) is almost entirely the result of cutting in Kittitas County. It is found at various places throughout the pine zone with a concentration in the vicinity of Cle Elum along the Teanaway and Taneum Rivers. The volume per acre in type 21 ranges from 1,000 to 5,000 board feet.

The 120,000 acres of Douglas fir types of merchantable size comprise about 40 percent of the sawlog types other than ponderosa pine. Douglas fir small old growth (type 7) is the most important. It is distributed over that section of the county lying between the pine zone and the alpine types found in the high Cascade Range. Generally, the Douglas fir stands are of rather low quality consisting of trees of rough character. However, some fine stands, containing trees of high quality and having volumes of 50,000 to 70,000 board feet per acre, are located in the vicinity of Lakes Keechelus and Katchess. These stands are typical of those in the Douglas fir region. The other important types in this group are fir-mountain hemlock large (type 23) and upper-slope mixture large (type 27 $\frac{1}{2}$). Type 23 consists mostly of silver fir, alpine fir, and mountain hemlock. It is found at high elevations in the inaccessible areas of the Cascade Range. Some very fine examples of the type are located along the Waptus and Cooper Rivers in the northwest portion of the county. Type 27 $\frac{1}{2}$ intermingles with both the fir-mountain hemlock and the Douglas fir types. Western larch, Engelmann spruce, Douglas fir, silver fir, western hemlock, mountain hemlock, white fir, lodgepole pine, and western red cedar are the species making up this type. All the types in this group are located in sections of the county that are less accessible than the pine zone. Because of this and the low stumpage value of the species these types are at the present more valuable for protection and recreational purposes than for commercial use.

Immature Types

These types occur on approximately 170,000 acres in the county. Of this amount about 110,000 acres are occupied by immature types that are the result of fire and 60,000 acres by types resulting from logging.

Immature ponderosa pine and pine mixture (types 22 and 28) cover a total area of 56,000 acres and are found chiefly in the vicinity of Cle Elum. They are almost entirely the result of logging. Satisfactory stocking conditions exist in a high percentage of the stands. About 22,000 acres are fully stocked (70 to 100 percent), 28,000 acres are medium stocked (40 to 69 percent), and 6,000 acres poorly stocked (10 to 39 percent). The pine timber was almost completely removed from the areas occupied by these types at the time of logging but in some instances, particularly in the Teanaway River drainage basin Douglas fir and western larch were only partly removed and a residual stand remains. Sometimes this stand amounts to as much as 2,000 or 3,000 board feet per acre. Its poor quality and low market value make it unimportant, however.

Depletion from causes other than logging has produced only 3,000 acres of types 22 and 28 in the county with fire the important factor. The ponderosa pine stands of Kittitas County are at present free of any serious attack of the western pine beetle (Dendroctonus brevicornis) and what slight damage there is is confined to the Naches River drainage basin.

Immature stands other than ponderosa pine consist of two Douglas fir types, small pole (type 9B) and seedlings and saplings (type 10), fir-mountain hemlock small (type 24), upper-slope mixture small (type 28 $\frac{1}{2}$),

and lodgepole pine, medium and small (types 26 and 26A). These types occur chiefly in the more rugged parts of the county where they occupy old burns and areas denuded by snow slides and avalanches. Some 10,000 acres of these types in the more accessible portions of the county, particularly along the Taneum River, is the result of logging.

Other Forest Types

The remaining forest types in the county are hardwoods, occupying 4,000 acres, subalpine and noncommercial rocky areas, occupying 80,000 acres, and nonrestocked cutovers and deforested burns, amounting to 13,000 acres. In this group, the large area of noncommercial forest land, that is, land incapable of producing commercial forest stands, is significant. While the forest cover over these areas is of no commercial value most of it is of a character that protects and preserves the watershed value of the high sections of the county, preventing rapid runoff and abnormal erosion. The rugged subalpine portions also have considerable recreational value.

Forest Ownership

Approximately half the forested area of Kittitas County is in Federal ownership, a slightly less amount is in private ownership, and the remainder is in State, county, and municipal ownership. The exterior boundaries of the Snoqualmie and the Wenatchee National Forests embrace considerably more than half the county's forest land, but due to a large amount of alienated holdings only between 35 and 40 percent of this is in national forest ownership.

Alienation in the national forests is chiefly the result of railroad land grants made during the period of rapid western development. As these grants included only the odd numbered sections in the townships, private and national forest land occurs as alternate sections over most of the area within the national forests. This condition leads to many problems in administration.

Saw-Timber Volume

The total saw-timber volume of Kittitas County is $6\frac{1}{2}$ billion board feet. The species distribution of this volume is shown in table 1 and figure 2. Douglas fir constitutes the largest volume with ponderosa pine in second place. Other important species are the balsam firs, mountain and western hemlock and western larch.

The volume of Douglas fir saw timber is large in proportion to the area of Douglas fir saw-timber types, owing to the fact that Douglas fir timber of commercial character is often found in other saw-timber types such as types 20, 27, and $27\frac{1}{2}$.

The volume of western larch is chiefly in types $27\frac{1}{2}$ and 27. Volume of the balsam firs, mountain hemlock, and western hemlock is found in type 23 principally, with some in type $27\frac{1}{2}$.

Forest Industries

The forest industrial development of Kittitas County is confined chiefly to logging operations. The logging operations of the Cascade Lumber Company are by far the most important in the county. This company has been operating in the pine zone for a number of years and has a well developed transportation system tapping the area west of Ellensburg. The logs produced are transported to Yakima for manufacture. Two other companies that operate rather extensively are the Cabin Creek Lumber Company near Easton and the M. C. Miller Lumber Company at Cle Elum. Other smaller organizations are located at Ellensburg and in surrounding areas.

The topography of the greater part of the pine zone is suitable for the use of light equipment in logging. The natural outlet for timber is down the various streams to the Yakima River and it is safe to say that most of the sawlogs produced in the county will be manufactured either at small mills along the river or transported to some central point in the Yakima Valley.

Three important sawmills are located in the county, one near Easton with a capacity of 65,000 board feet per 8-hour shift, one at Cle Elum with a capacity of 40,000 board feet per 8-hour shift, and one at Ellensburg with a capacity of 40,000 board feet per 8-hour shift. Local logging operations supply the sawlogs for these mills.

In addition to lumber, box shook and fuel wood are important forest products of the county.

While the production of commercial timber is of prime importance, other functions of the forest must be considered. One is the protection furnished the watersheds supplying the reclamation projects on which the agriculture of the county is almost entirely dependent. If the watersheds were deforested, abnormally heavy runoff during the rainy and snow-melting season with the subsequent drying up of numerous streams during the summer together with the heavy silting up of the lakes and reservoirs that would take place would very seriously reduce the efficiency of these projects. The grazing and recreational functions of the forests are also economically important to the county. The cattle and sheep that use the forage of the open ranges during the winter and spring are taken to the forest ranges for summer and fall feed. Many fishermen, hunters, campers, hikers, and other vacationists utilize the recreational facilities of the forests in Kittitas County.

FOREST STATISTICS FOR KITTITAS COUNTY, WASHINGTON
FROM INVENTORY PHASE OF FOREST SURVEY

TABLE 1. VOLUME OF TIMBER BY SPECIES AND BY OWNERSHIP CLASS
DATA CORRECTED TO JULY 1, 1935

TREES 12" AND MORE IN D.B.H.
THOUSANDS OF BOARD FEET, LOG SCALE, SCRIBNER RULE

SUR- VEY SYM- BOL :	SPECIES ^{1/}	FEDERAL								
		PRIVATE	STATE, AVAILABLE FOR CUTTING	COUNTY	MUNICIPAL	PUBLIC DOMAIN ^{2/}	NATIONAL FOREST			TOTAL
							RAILROAD SELECTION	AVAILABLE FOR	RESERVED FROM	
Y :	PONDEROSA PINE	724,058	213,587	479	117	5,004	88,503	292,963	23,822	1,348,533
W :	WESTERN WHITE PINE	46,237	2,092			202	11,634	58,426	449	119,040
LP :	LODGEPOLE PINE	42,256	10,285	2		286	6,126	23,517	20	82,492
DF :	DOUGLAS FIR	1,063,743	61,882	1,689		5,539	125,257	1,006,904	21,822	2,286,836
C :	WESTERN RED CEDAR	22,671	228	15		285	1,078	17,948	18	42,243
YC :	ALASKA CEDAR	120					462	888		1,470
H :	WESTERN HEMLOCK	270,713	6,040	100		680	29,153	229,566	2,800	539,052
MH :	MOUNTAIN HEMLOCK	69,199	1,821				20,874	94,592		186,486
WF :	LOWLAND WHITE FIR	98,745	11,221	73		682	13,156	101,681	2,129	227,687
NF :	NORLE FIR	11,525	475					4,515	35	16,550
A :	SILVER FIR	345,156	5,434	80		45	104,544	505,330	1,250	961,839
AF :	ALPINE FIR	22,734	235				18,594	69,941	35	111,539
WL :	WESTERN LARCH	185,686	30,081	801		999	20,037	154,346	967	392,917
ES :	ENGELMANN SPRUCE	32,688	9,117			20	7,546	43,446		92,817
BC :	NORTHERN BLACK COTTONWOOD	8,019	393	25		265		461	166	9,329
ASP :	ASPEN							90		90
TOTAL		2,943,550	352,891	3,264	117	14,007	446,964	2,604,614	53,513	6,418,920

^{1/} IN ADDITION TO THE SPECIES LISTED ALPINE LARCH, WHITEBARK PINE, WESTERN JUNIPER, ROCKY MOUNTAIN RED CEDAR (JUNIPERUS SCOPULORUM), WHITE ALDER, RED ALDER, AND RED BIRCH ARE KNOWN TO OCCUR BUT IN NEGLIGIBLE QUANTITIES.

^{2/} INCLUDES THE TIMBER ON 110 ACRES OWNED BY THE U. S. BUREAU OF RECLAMATION.

FOREST STATISTICS FOR KITTITAS COUNTY, WASHINGTON
FROM INVENTORY PHASE OF FOREST SURVEY

TABLE 2. AREA, IN ACRES, OF ALL FOREST COVER TYPES, BY OWNERSHIP CLASS
DATA CORRECTED TO JULY 1, 1935

SUR- VEY TYPE NO.	TYPE DEFINITION	FEDERAL								TOTAL	
		PRIVATE	STATE,	COUNTY	MUNICIPAL	PUBLIC DOMAIN	RAILROAD	NATIONAL FOREST			
			AVAILABLE FOR CUTTING				SELECTION PENDING	AVAILABLE FOR CUTTING	RESERVED FROM CUTTING		
	WOODLAND:										
5 1/2	PONDEROSA PINE WOODLAND: SCATTERED STANDS OF MATURE PONDEROSA PINE ON UNFAVORABLE SITES	6,335	1,730	55		185	10	125		8,440	
	PONDEROSA PINE: FORESTS CONTAINING 50% OR MORE OF PONDEROSA PINE										
20	PONDEROSA PINE, LARGE: FORESTS CONTAINING 50 TO 80% OF PONDEROSA PINE, MORE THAN 22" DBH	23,865	5,830			115	6,405	26,915	2,355	65,485	
20.5	PURE PONDEROSA PINE, LARGE: FORESTS CONTAINING 80% OR MORE OF PONDEROSA PINE, MORE THAN 22" DBH	47,770	19,490	85	10	490	4,400	4,200	55	76,500	
21	PONDEROSA PINE, SMALL: 12 TO 22" DBH	35,260	2,725	45	60	380		555		39,025	
22	PONDEROSA PINE SEEDLINGS, SAPLINGS, AND POLES: LESS THAN 12" DBH	36,565	3,665	110	55	435	10	605	45	41,490	
	PINE MIXTURE: MIXED FORESTS CONTAINING 20 TO 50% OF PONDEROSA PINE										
27	PINE MIXTURE, LARGE: 12" OR MORE DBH	25,450	2,095	15		135	4,000	13,535	1,035	46,265	
28	PINE MIXTURE, SMALL: LESS THAN 12" DBH	12,360	1,020	50		105	250	890		14,675	
	DOUGLAS FIR: FORESTS CONTAINING 60% OR MORE OF DOUGLAS FIR										
6	DOUGLAS FIR, LARGE OLD GROWTH: MORE THAN 40" DBH	275					100	470	90	935	
7	DOUGLAS FIR, SMALL OLD GROWTH: 22 TO 40" DBH	54,630	2,175	125		450	5,900	46,300	350	109,930	
8	DOUGLAS FIR, LARGE SECOND GROWTH: 22 TO 40" DBH	4,605	555				50	990		6,200	
9A	DOUGLAS FIR, LARGE POLES: 12 TO 20" DBH	950					1,035	2,285		4,270	
9B	DOUGLAS FIR, SMALL POLES: 6 TO 10" DBH	9,925	305	125		395	2,240	8,065		21,055	
10	DOUGLAS FIR, SEEDLINGS AND SAPLINGS: LESS THAN 6" DBH	7,900	1,390	525		15	780	5,460		16,070	
	WESTERN RED CEDAR: FORESTS CONTAINING 40% OR MORE OF WESTERN RED CEDAR										
17	WESTERN RED CEDAR, LARGE: MORE THAN 24" DBH	125				10		120		255	
	FIR-MOUNTAIN HEMLOCK: FORESTS CONTAINING 50% OR MORE OF SILVER FIR, ALPINE FIR, NOBLE FIR, MOUNTAIN HEMLOCK, OR WESTERN HEMLOCK, OR OF ANY COMBINATION OF THESE SPECIES										
23	FIR-MOUNTAIN HEMLOCK, LARGE: 12" OR MORE DBH	32,995	895				12,910	44,865		91,665	
24	FIR-MOUNTAIN HEMLOCK, SMALL: LESS THAN 12" DBH	10,950					4,050	14,485		29,485	
	UPPER-SLOPE MIXTURE: MIXED FORESTS OF WESTERN LARCH, DOUGLAS FIR, ENGELMANN SPRUCE, SILVER FIR, WHITE FIR, ALPINE FIR, LODGEPOLE PINE, OR WHITE PINE; OCCASIONALLY OTHER SPECIES										
27 1/2	UPPER-SLOPE MIXTURE, LARGE: 12" OR MORE DBH	32,930	4,320	255		70	5,200	40,730	40	83,545	
28 1/2	UPPER-SLOPE MIXTURE, SMALL: LESS THAN 12" DBH	11,975	1,045	295		595	5,115	16,960		35,985	
	LOWLAND WHITE FIR: FORESTS CONTAINING 50% OR MORE OF LOWLAND WHITE FIR										
29	LOWLAND WHITE FIR, LARGE: 12" OR MORE DBH	330		25			55	150		560	
30	LOWLAND WHITE FIR, SMALL: LESS THAN 12" DBH	225								225	
	LODGEPOLE PINE: FORESTS CONTAINING 50% OR MORE OF LODGEPOLE PINE										
25	LODGEPOLE PINE, LARGE: 12" OR MORE DBH	2,295	120				715	1,170		4,300	
26	LODGEPOLE PINE, MEDIUM: 6 TO 10" DBH	1,780	35				1,155	4,130		7,100	
26A	LODGEPOLE PINE, SMALL: LESS THAN 6" DBH	1,175	780				400	1,240		3,595	
	HARDWOOD: FORESTS CONTAINING 50% OR MORE OF NORTHERN BLACK COTTONWOOD AND ASPEN										
31.5	HARDWOODS, LARGE: 12" OR MORE DBH	3,280				80		95		3,455	
31	HARDWOODS, SMALL: LESS THAN 12" DBH	660	45							705	
33	SUBALPINE: FORESTS AT UPPER LIMITS OF TREE GROWTH, USUALLY UNMERCHANTABLE	3,265	215				6,330	12,700		22,510	
	NONRESTOCKED CUTOVERS: LOGGED AREAS NOT SATISFACTORILY RESTOCKED AND NOT CARRYING A RESIDUAL STAND OF 1 M OR MORE PER ACRE										
35A	CUT SINCE BEGINNING OF 1920	3,640	165	35			95	195		4,130	
35B	CUT BEFORE 1920	1,510	15			25				1,550	
	DEFORESTED AREAS: NONRESTOCKED AREAS DEFORESTED OTHERWISE THAN BY CUTTING										
37	DEFORESTED BURNS	2,530	555			210	1,400	2,690		7,385	
38	NONCOMMERCIAL ROCKY AREAS	10,310	1,105	55	35	480	16,070	27,585	520	56,160	
TOTALS FOR FOREST LAND		385,865	50,275	1,800	160	4,175	78,675	277,510	4,490	802,950	
1 & 2: NONFOREST LAND: CULTIVATED, GRASS, SAGEBRUSH, BARRENS, CITIES, UNMEASURED WATER SURFACES, ETC.		676,195 ACRES OF NONFOREST LAND UNCLASSIFIED BY OWNERSHIP						11,375	40	687,610	
TOTALS FOR COUNTY								288,885	4,530	2,490,560	

1/ INCLUDES 110 ACRES OWNED BY THE U. S. BUREAU OF RECLAMATION.

2/ THE TOTAL AREA OF THE COUNTY ACCORDING TO THE BUREAU OF THE CENSUS IS 1,490,560. OF THIS TOTAL, 814,365 ACRES WAS CLASSIFIED AS TO OWNERSHIP BY THE FOREST SURVEY.

FOREST STATISTICS FOR KITTITAS COUNTY, WASHINGTON
FROM INVENTORY PHASE OF FOREST SURVEY

TABLE 3. AREA, IN ACRES, OF GENERALIZED FOREST TYPES, BY OWNERSHIP CLASS
DATA CORRECTED TO JULY 1, 1935

TYPE DEFINITION	FEDERAL									TOTAL
	PRIVATE	STATE,	COUNTY	MUNICIPAL	PUBLIC DOMAIN ^{1/}	RAILROAD SELECTION PENDING	NATIONAL FOREST			
		AVAILABLE					AVAILABLE	RESERVED		
		FOR CUTTING					FOR CUTTING	FROM CUTTING		
HARDWOODS: COTTONWOOD AND ASPEN SURVEY TYPES 31 AND 31.5	3,940	45			80		95		4,160	
PONDEROSA PINE 12" OR MORE DBH SURVEY TYPES 5 $\frac{1}{2}$, 20, 20.5, 21, AND 27	138,680	31,870	200	70	1,305	14,815	45,330	3,445	235,715	
PONDEROSA PINE LESS THAN 12" DBH SURVEY TYPES 22 AND 28	ON CUTOVER AREAS	46,930	4,275	160	55	415	10	1,065	45	52,955
	ON OLD BURNS	1,995	410			125	250	430		3,210
	TOTAL	48,925	4,685	160	55	540	260	1,495	45	56,165
CONIFERS 12" OR MORE DBH OTHER THAN PONDEROSA PINE AND LODGEPOLE PINE SURVEY TYPES 6, 7, 8, 9A, 17, 23, 27 $\frac{1}{2}$, AND 29		126,840	7,945	405		530	25,250	135,910	480	297,360
CONIFERS LESS THAN 12" DBH OTHER THAN PONDEROSA PINE AND LODGEPOLE PINE SURVEY TYPES 9B, 10, 24, 28 $\frac{1}{2}$, AND 30	ON CUTOVER AREAS	8,330	1,190	185		55		1,150		10,910
	ON OLD BURNS	32,645	1,550	760		950	12,185	43,820		91,910
	TOTAL	40,975	2,740	945		1,005	12,185	44,970		102,820
LODGEPOLE PINE 12" OR MORE DBH SURVEY TYPE 25		2,295	120				715	1,170		4,300
LODGEPOLE PINE LESS THAN 12" DBH SURVEY TYPES 26 AND 26A		2,955	815				1,555	5,370		10,695
NONCOMMERCIAL AREAS SURVEY TYPES 33 AND 38		13,575	1,320	55	35	480	22,400	40,285	520	78,670
NONRESTOCKED CUTOVER AREAS AND DEFORESTED BURNS SURVEY TYPES 35A, 35B, AND 37		7,680	735	35		235	1,495	2,885		13,065
TOTALS FOR FOREST LAND		385,865	50,275	1,800	160	4,175	78,675	277,510	4,490	802,950
NONFOREST LAND SURVEY TYPES 1 AND 2		676,195 ACRES OF NONFOREST LAND UNCLASSIFIED BY OWNERSHIP						11,375	40	687,610
TOTALS FOR COUNTY								288,885	4,530 ^{2/}	1,490,560

^{1/} INCLUDES 110 ACRES OWNED BY THE U. S. BUREAU OF RECLAMATION.

^{2/} THE TOTAL AREA OF THE COUNTY ACCORDING TO THE BUREAU OF THE CENSUS IS 1,490,560. OF THIS TOTAL, 814,365 ACRES WAS CLASSIFIED AS TO OWNERSHIP BY THE FOREST SURVEY.

FOREST STATISTICS FOR KITTITAS COUNTY, WASHINGTON
FROM INVENTORY PHASE OF FOREST SURVEY

TABLE 4. AREA OF FOREST LAND, BY SITE QUALITY
DATA CORRECTED TO JULY 1, 1935

TYPE	SITE QUALITY CLASS ^{1/}	ACRES	AREA			
			PERCENTAGE OF—			
			CONIFEROUS :	FOREST LAND :	TOTAL :	TOTAL
			CLASSIFIED :	AS TO SITE :	FOREST LAND ^{2/}	AREA OF
			QUALITY :			COUNTY
PONDEROSA PINE, PONDEROSA PINE MIXTURE, WHITE FIR	PONDEROSA PINE	III :	6,120 :	0.9 :	0.8 :	0.4
		IV :	204,700 :	29.0 :	25.5 :	13.7
		V :	86,105 :	12.2 :	10.7 :	5.8
		VI :	1,120 :	0.2 :	0.1 :	0.1
			298,045 :	42.3 :	37.1 :	20.0
DOUGLAS FIR, FIR- MOUNTAIN HEMLOCK AND UPPER-SLOPE MIXTURE	DOUGLAS FIR	II :	320 :	1.9 :	1.7 :	0.9
		III :	13,100 :			
		IV :	220,950 :	31.3 :	27.5 :	14.8
		V :	172,710 :	24.5 :	21.5 :	11.6
			407,080 :	57.7 :	59.7 :	27.3
TOTAL			705,125 :	100.0 :	87.8 :	47.3
LODGEPOLE PINE			14,995 :		1.9 :	1.0
NONCOMMERCIAL ROCKY AREAS			56,160 :		7.0 :	3.8
SUBALPINE			22,510 :		2.8 :	1.5
HARDWOOD			4,160 :		0.5 :	0.3
TOTAL			97,825 :		12.2 :	6.6
GRAND TOTAL			802,950 :		100.0 :	53.9

1/ THE "SITE QUALITY" OF A FOREST AREA IS ITS RELATIVE PRODUCTIVE CAPACITY, DETERMINED BY CLIMATIC, SOIL, TOPOGRAPHIC, AND OTHER FACTORS. THE INDEX OF SITE QUALITY IS THE AVERAGE HEIGHT OF THE DOMINANT STAND AT THE AGE OF 100 YEARS. SIX SITE QUALITY CLASSES ARE RECOGNIZED FOR PONDEROSA PINE AND FIVE FOR DOUGLAS FIR, CLASS I BEING IN EACH CASE THE HIGHEST. IN THE SURVEY THE PONDEROSA PINE AND DOUGLAS FIR CLASSIFICATIONS, RESPECTIVELY, WERE USED NOT ONLY FOR TYPES OF WHICH THESE SPECIES ARE CHARACTERISTIC COMPONENTS BUT FOR OTHER TYPES FOR WHICH NO SITE QUALITY CLASSIFICATIONS HAVE BEEN DEVELOPED.

2/ THE TOTAL AREA OF THE COUNTY IS 1,490,560 ACRES, (1930 U. S. CENSUS) OF WHICH 802,950 ACRES (53.9 PERCENT) IS FOREST LAND AND 687,700 ACRES (46.1 PERCENT) IS NONFOREST LAND.

FOREST STATISTICS FOR KITTITAS COUNTY, WASHINGTON

FROM INVENTORY PHASE OF FOREST SURVEY

FIGURE 2. DISTRIBUTION OF SAW-TIMBER VOLUME BY SPECIES, AND OWNERSHIP CLASSES (FROM TABLE 1)

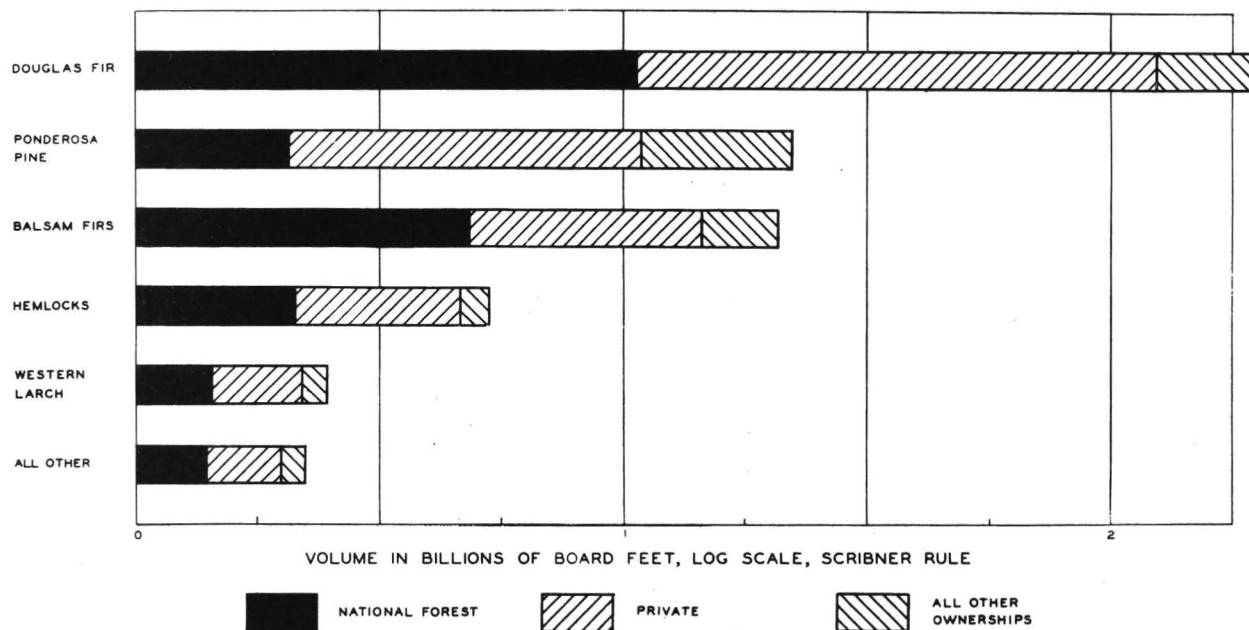


FIGURE 3. OWNERSHIP OF FOREST LAND (FROM TABLE 2)

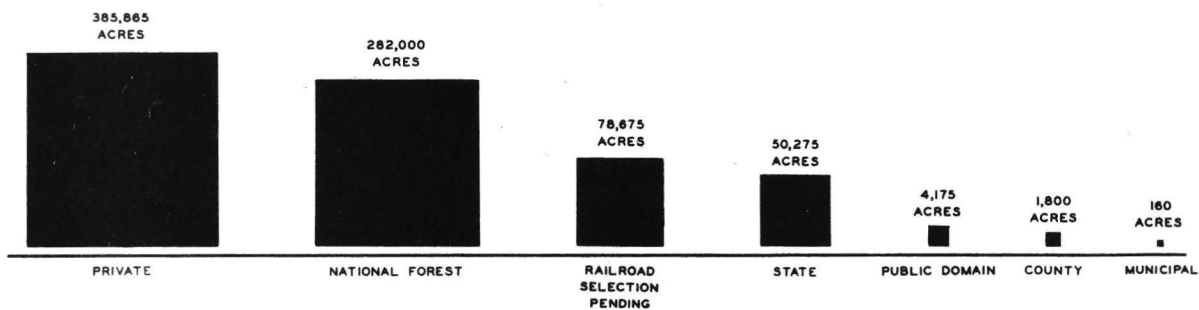


FIGURE 4. DISTRIBUTION OF FOREST LAND BY GENERALIZED TYPES, ALL OWNERSHIP CLASSES (FROM TABLE 3)

